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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,147	02/11/2004	Heon-Sang Lee	0808-0347P	1179
2292	7590	07/02/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			CHEUNG, WILLIAM K	
			ART UNIT	PAPER NUMBER

1713

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/775,147

Applicant(s)

LEE ET AL.

Examiner

William K Cheung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0421.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-10, 13-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Salyer (US 5,565,132).

*The invention of claims 1-10, 13-18 relates to a **heat absorb-release plastic resin** composition comprising a **matrix resin material** and a **phase transition material** that has **lower fusion-crystallization temperature** than the **matrix resin** and has **10J/g or more of heat absorb or heat release amount at a lower temperature than a fusion temperature of the matrix resin**, said **heat absorb-release plastic resin composition** satisfying one of the following requirements:*

- a) **Flexural Modulus being 3000 Kg/cm or more,***
- b) **room temperature heat conductivity being 0.4 W/m-K or more, and***
- c) **Flexural Modulus being 3000Kg/cm or more, and room temperature heat conductivity being 0.4 W/m-K or more.***

Salyer (col. 6, claim 1) discloses a composite useful for thermal energy storage comprising about 15-22 weight percent of polyolefin resin selected from the group consisting of uncrosslinked high density polyethylene and polypropylene, about 7-12 weight percent of an ethylene-vinylacetate copolymer, an ethylene-methyl acrylate copolymer, and ethylene-ethyl acrylate copolymer, about 7-16 weight percent of silica particles, and 55-60 weight percent of a phase change material selected from the group consisting of crystalline fatty acids, crystalline fatty acid esters, crystalline 1-olefins,

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crystalline primary alcohols, crystalline alicyclic hydrocarbons, and crystalline aromatic hydrocarbon. In view of substantially identical composition disclosed in Salyer and the composition being claimed, the examiner has a reasonable basis to believe that the claimed "phase transition material that has lower fusion-crystallization temperature than the matrix resin and has 10J/g or more of heat absorb or heat release amount at a lower temperature than a fusion temperature of the matrix resin", the claimed flexural modulus, room temperature heat conductivity, the properties as described by equation-1, 2, 3 are inherently possessed in Salyer. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

4. Claims 11, 12, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salyer (US 5,565,132) in view of Nguyen et al. (US 2003/0068487).

Set forth from paragraph 4 of instant office action, the composition of Salyer and the composition of claims 11, 12, 19, 20 are substantially similar except that Salyer is silent on a composition comprising a thermally conductive solid additive.

Nguyen et al. (page 3, paragraphs 0024 to 0026) disclose using a thermally conductive solid which includes a list metals and carbon fiber to increase the thermal

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conductivity of a polymer composite. Motivated by the expectation of success of preparing a thermally conductive composite material, it would have been obvious to one of ordinary skill in art to use the thermally conductive teachings of Nguyen et al. into Salyer to obtain the invention of claims 11, 12, 19, 20.

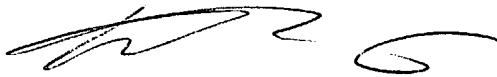
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'William K. Cheung', with a stylized flourish at the end.

William K. Cheung

Primary Examiner

June 29, 2004